

REMARKS

This amendment is submitted in response to the Office Action dated April 7, 2004. Reconsideration and allowance is requested.

Drawings

In paragraphs 1-2 of the Office Action the Examiner objected to the drawings because they include reference signs 255 and 257, which are not mentioned in the description, and the drawings must show each and every feature of the invention specified in the claims. The Applicant has amended paragraph [0031] of the specification to include reference signs 255 and 257. In light of this amendment, the Applicants request that the Examiner remove his objections to the drawings.

Specification

In paragraph 3 of the Office Action the Examiner stated that the previously amended title of the invention is not descriptive and suggested that the title be amended to "Thin Film Electrostatic Motors With Dynamic Pressure Bearing." The Applicants have amended the title according the Examiners suggestion in this response.

Claim Objections

In paragraph 4 of the Office Action the Examiner objected to claims 1-11, 19 and 20 because claim 1 has the spelling informalities on-line 6 that "th" should be "the", and claim 19 has spelling informalities on line 2, "th" should be "the." The Applicant's copies of the originally filed specification and subsequently filed amendments do not show the

misspelling of "the" as "th." Consequently, the Applicants are unsure exactly where to make the spelling corrections and request that the Examiner either make the correction through an Examiner's amendment or forward the claims showing the misspelling so that the Applicant can make the correction.

Claim Rejection Under 35 U.S.C. 102(b)

In paragraph 8 of the Office Action the Examiner rejected claims 1, 4, 7, 8, 9, 10 and 11 under 35 U.S.C. 102(b) as being anticipated by Tanaka et al. The Examiner stated:

Tanaka teaches an electrostatic motor with a rotor having electrodes 35 and the stator having electrodes 25 driven by a voltage source 37. Tanaka teaches a rotor with a bearing ring/dimple rotating about a shaft/hub with oil lubricant (dielectric constant inherently greater than 1). Tanaka teaches the oil is positioned between a surface of the stator (stationary part) and the rotor (rotating part) of the bearings. It is inherent that the oil maintains the gap between the rotor and stator bearing parts which inherently maintains the spacing of the electrodes.

The Applicant respectfully traverses. In relying upon the theory of inherency, the Examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art. See MPEP 2112. The Examiner's position that it is inherent that the oil maintains the gap between the rotor and stator bearing parts, which inherently maintains the spacing of the electrodes, is not legally supported because the inherent characteristic **does not** necessarily flow from the teachings of the applied prior art. The Examiner is asserting that the presence of oil between the rotor and the stator inherently maintains spacing between the two. This reasoning is flawed because oil between a rotor surface and stator surface may be used for lubrication purposes and not

necessarily to separate the two surfaces. For example if just a small amount of oil is used between the two surfaces then portions of the surface would still contact each other but the oil would still function as a lubricant. It is not inherent that just because oil is placed between a rotor and a stator that the spacing between the two will be maintained. In fact if this were true, the mere use of oil would completely eliminate wear in motors because oil would always maintain spacing between surfaces eliminating contact and wear.

Unfortunately this is not the case and surfaces to contact each other and wear out, even with lubricating oil dispensed between surfaces that are moving relative to each other. Therefore the Examiner has not provided a basis in fact and/or technical reasoning to reasonably support the determination that that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art and the Applicant respectfully request that the Examiner withdraw his rejection of these claims.

In paragraph 9 of the Office Action the Examiner rejected claims 18 and 19 under 35 U.S.C. 102(b) as being clearly anticipated by Iwasaki (US 5235454) because Iwasaki teaches a spindle motor with rotor and stator electrodes 18 receiving alternating electric charge with a fluid between the electrodes to maintain the gap between the rotor and stator during operation and Iwasaki teaches a dynamic pressure groove 34 to work with the fluid. In response, independent claim 18 has been canceled and dependent claim 19 has been amended to incorporate the limitations of independent claim 18. The Applicant respectfully traverses the rejection of claim 19. Iwasaki **does not** teach using a fluid between the electrodes to maintain the gap between the rotor and stator during operation. Moreover, Iwasaki teaches away from using a fluid to maintain the spacing between the

rotor and stator because he uses only electrostatic forces to accomplish this separation, as is evident from his teachings in column 11 lines 42 - 48, which state:

In this case, by making the opposed surfaces of the electric charge holding layers 35 identical in polarity, it is possible to float the rotor 11 using a repulsive force based on an electrostatic force. Pre-charged insulators or conductors into which an electric charge is introduced may be used as the electric charge holding layer 35.

Therefore Iwasaki does not anticipate claim 19 and the Applicant respectfully request that the Examiner withdraw his rejection of this claim.

Claim Rejection Under 35 U.S.C. 103

In paragraph 11 of the Office Action the Examiner rejected claims 6, 12, 16, and 17 under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al. (Tanaka)(JP 08-029556) and Kusaki (JP 06-021532). The Examiner stated:

Tanaka teaches every aspect of the invention except the hearing bone dynamic pressure bearing. Kusaki teaches a hearing bone dynamic pressure bearing on the inclined surface 2a for a micromotor (see figures 4 and 5). It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the motor of Tanaka with the hearing bone bearing of Kusaki to provide a stable bearing in the axial and radial directions

The Applicants vigorously traverse. In order to establish *prima facie* obviousness of a claimed invention three basic criteria must be met. First there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Third, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's

disclosure. See *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991) And MPEP 2143. The Applicants respectfully submit that the Examiner has not satisfied all three criteria outlined in MPEP 2143.

First, there is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. According to the Examiner, Kusaki teaches a hearing bone dynamic pressure bearing. This feature is used in high-speed motors to improve performance. Tanaka, on the other hand, teaches a motor used in a dial for a display device, which moves less than 360 degrees at relatively very low speeds. The Applicant submits that there is no reason for one of ordinary skill in the art to combine the hearing bone dynamic pressure bearing, used to improve performance only in high speed motors, with a very slow rotating motor used in dials that moves less than 360 degrees to make the claimed invention. Therefore the Examiner has not met his burden of showing a suggestion or motivation to combine the teachings of Kusaki and Tanaka.

Second, the Examiner must show that there is a reasonable expectation of success. Here there is no reason to assume that the hearing bone bearing used in the high-speed dynamic motor will improve the slow rotating motor used in a dial that rotates less than 360 degrees. The Applicant submits that there is no reasonable expectation of success to combine features of two completely different motors that serve different functions.

Third, the prior art reference (or references when combined) does not teach or suggest all the claim limitations. Regarding claim 6, Tanaka does not teach, show or suggest a fluid disposed between a surface of the stator and a facing surface of the rotor, for maintaining said spaced apart orientation of the first plurality of surface electrodes

and the second plurality of surface electrodes, as discussed above in our arguments against the 35 U.S.C. 102(b) anticipation rejection under Tanaka et al. Regarding claims 12, 16 and 17, Tanaka does not teach, show or suggest an electrostatic spindle motor including a first fluid dynamic bearing surface formed on a stator and a second fluid dynamic bearing surface formed on the rotor as recited in independent claim 12. Therefore, the prior art reference (or references when combined) does not teach or suggest all the claim limitations.

Since the three basic criteria are not met, the Examiner has not established *prima facie* obviousness of the claimed invention. Therefore the Applicant respectfully requests that the Examiner withdraw his rejection of claims 6, 12, 16, and 17 under 35 U.S.C. 103(a).

In paragraph 12 of the Office Action the Examiner rejected claims 2 and 14 under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al. (Tanaka)(JP 08-029556), Kusaki (JP 06-021532) in further view of Mizoshita (US 5793560). Here the Examiner has also failed to show any motivation to combine these references. Mizoshita teaches a storage device which typically uses very fast motors spinning at many thousands of revolutions per minute. There would be no reason think that the motor taught in Tanaka, which rotates very slowly and moves a dial less than 360 degrees, would have any application or relevance to a disc drive motor that operates completely differently. Additionally, the combined teachings of Tanaka, Kusaki and Mizoshita do not teach the claimed invention. Regarding claim 2, Tanaka does not teach "a fluid disposed between a surface of the stator and a facing surface of the rotor, for maintaining said spaced apart orientation of the first plurality of surface electrodes and the second plurality of surface

electrodes," as previously argued. The combination of Tanaka, Kusaki and Mizoshita fail to correct for this deficiency. Regarding claim 12, Tanaka does not teach, show or suggest an electrostatic spindle motor including a first fluid dynamic bearing surface formed on a stator and a second fluid dynamic bearing surface formed on the rotor as recited in independent claim 12. Again, the combination of Tanaka, Kusaki and Mizoshita fail to correct for this deficiency. Therefore, the prior art reference (or references when combined) does not teach or suggest all the claim limitations.

In paragraph 13 the Examiner rejected claims 3 and 13 under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al. (Tanaka)(JP 08-029556), Kusaki (JP 06-021532) in further view of Howe (US 5793560). As previously argued Tanaka and Kusaki do not teach each and every aspect of the claimed invention except the spacing between the motor and stator being 1-5 microns. Furthermore as previously argued there is no motivation or suggestion to combine Tanaka and Kusaki or for that matter Howe..

In paragraph 14 the Examiner rejected claims 5 and 15 under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al. (Tanaka)(JP 08-029556) and Kusaki (JP 06-021532) in further view of Zedekar (US 5173797). As previously argued Tanaka and Kusaki do not teach each and every aspect of the claimed invention except the grooves on the rotor instead of the stator. Furthermore as previously argued there is no motivation or suggestion to combine Tanaka and Kusaki or for that matter Zedekar.

In paragraph 15 the Examiner rejected claim 20 under 35 U.S.C. 103(a) as being unpatentable over Iwasaki (US 5235454) and Narita (JP 08-051786). The Applicant traverses. The Examiner has not shown any reason to combine the insulating oil used in Narita with the motor described by Iwasaki to make the claimed invention. Narita uses

insulating oil between a rotor and a stator to form an insulating surface between the two, preventing electrical discharge in the event that the rotor contacts the stator. This use of oil is completely different than the claimed invention which uses a fluid dynamic bearing surface means which, in combination with the fluid means, maintains a gap between the first electrode means and the second electrode means. There is no reason to combine insulating oil used to prevent electrical discharge between the rotor and stator with Iwasaki to make the combined invention that uses a fluid in combination with fluid dynamic bearing to help maintain a gap between the rotor and stator.

Even if there were some motivation to combine Iwasaki and Narita, the combination of the two would not teach each and every element of the claimed invention. Specifically, neither Iwasaki nor Narita teach a fluid dynamic bearing surface means which, in combination with the fluid means, maintains a gap between the first electrode means and the second electrode means. Iwasaki relies on electromagnetic forces to levitate the rotor as described in column 11 lines 10 to 15 and on column 11 lines 39 to 45 and controls the gap by application of voltages across the electrodes. The claimed invention uses hydrodynamic fluid bearing to make the rotor “fly” above the surface of the stator. Iwasaki does not mention, suggest or allude to using fluids as means to increase electrostatic forces. Narita also fails to teach using a fluid dynamic bearing surface means which, in combination with the fluid means, maintains a gap between the first electrode means and the second electrode means. Therefore, the combination does not teach each and every element of the claimed invention and the Applicant requests that the Examiner withdraw his rejection.

In light of these amendments and remarks the Applicants respectfully request that the Examiner allow the claims.

Conclusion

In light of the above remarks and amendments, this application should be considered in condition for allowance and the case passed to issue. If there are any questions regarding these remarks or the application in general, a telephone call to the undersigned would be appreciated to expedite prosecution of the application.

In the event that the transmittal letter is separated from this document and the Patent and Trademark Office determines that an extension and/or other relief is required, applicants petition for any required relief including extensions of time and authorizes the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to **Deposit Account No. 19-1036**. Please credit any excess fees to such deposit account.

Date

6/7/2004

Respectfully submitted,
SEAGATE TECHNOLOGY LLC
(Assignee of Entire Interest)

Jesus Del Castillo

Jesus Del Castillo, Reg. No. 51,604
SEAGATE TECHNOLOGY LLC
920 Disc Drive, SV15B1
Scotts Valley, CA 95066-4544
(831) 439-7529 (telephone)
(831) 438-1290 (facsimile)
Customer Number 28063